

Trinomials $x^2 + bx + c$

Example: $x^2 - 7x + 6 = (x-1)(x-6)$

1. $x^2 - 2x - 35$

2. $x^2 - 12x + 35$

3. $x^2 + 10x + 24$

4. $x^2 + 10x - 24$

Trinomials $ax^2 + bx + c$

Example: $2x^2 + 11x + 5 = (2x+1)(x+5)$

5. $3x^2 - 13x - 10$

6. $4x^2 + 8x + 3$

7. $2x^2 + 9x - 18$

8. $6x^2 + 4x - 2$

Difference of Squares

Example: $x - 16 = (\sqrt{x} + 4)(\sqrt{x} - 4)$

9. $x - 9$

10. $x^2 - 5$

11. $9y - a^4$

12. $x^{16} - 1$

Difference of Squares “Soap”

Example: $a^3 + b^3 = (a+b)(a^2 - ab + b^2)$

13. $a^3 + 125$

14. $64a^3 + 125b^3$

15. $64a^3x^3 - 125$

16. $1 - 8a^6b^3$

Factor

17. $3x^2 + 15x + 12$

18. $125b^3 + 8$

19. $c^3 + c^2 - 4c - 4$

20. $r^2 - 14r - 72$

21. $2x^2 + 5x + 2$

22. $m^2 - 9$

23. $x^2 - 64$

24. $2x^2 + 5x + 3$

25. $7p^2 - 4p - 3$

26. $3m^2 + 11m - 4$

27. $c^3 - 27$

28. $2y^2 - 16y + 24$

Rationalize the Numerator

$$29. \frac{\sqrt{x+2}-\sqrt{2}}{x}$$

$$30. \frac{\sqrt{x+3}+\sqrt{3}}{x}$$

$$31. \frac{2-\sqrt{4-x}}{x}$$

$$32. \frac{5-\sqrt{25-x}}{x}$$

$$33. (w^2x^2y)^4$$

$$34. (-m^2n)^5$$

$$35. \frac{a^6bc^2}{a^7bc^5}$$

$$36. \frac{-a^3}{(-a^3)^2}$$

$$37. \frac{(-km^2)^4}{(km)^3(km^5)}$$

$$38. (x^2y^{n-4})^3(x^3y^{n+6})^2$$

$$39. 3x^0$$

$$40. (6t^{-5})^{-1}$$

$$41. \frac{10ab^{-7}c^{-2}}{15a^{-2}b^0c^{-3}}$$

$$42. (4r^2t^{-2})^3(6r^{-2}t^3)^0$$

Answer key

1. $(x+5)(x-7)$	8. $2(3x-1)(x+1)$	15. $(4ax-5)(16a^2x^2+20ax+25)$	22. $(m-3)(m+3)$	29. $\frac{1}{\sqrt{x+2}+\sqrt{2}}$	36. $-\frac{1}{a^3}$
2. $(x-5)(x-7)$	9. $(\sqrt{x}+3)(\sqrt{x}-3)$	16. $(1-2a^2b)(1+2a^2b+4a^4b^2)$	23. $(x-8)(x+8)$	30. $\frac{1}{\sqrt{x+3}-\sqrt{3}}$	37. 1
3. $(x+4)(x+6)$	10. $(x+\sqrt{5})(x-\sqrt{5})$	17. $3(x+4)(x+1)$	24. $(2x+3)(x+1)$	31. $\frac{1}{2+\sqrt{4-x}}$	38. $x^{12}y^{5n}$
4. $(x-2)(x+12)$	11. $(3\sqrt{y}+a^2)(3\sqrt{y}-a^2)$	18. $(5b+2)(25b^2-10b+4)$	25. $(7p+3)(p-1)$	32. $\frac{1}{5+\sqrt{25-x}}$	39. 3
5. $(3x+2)(x-5)$	12. $(x^8+1)(x^4+1)(x^2+1)(x+1)(x-1)$	19. $(c-2)(c+2)(c+1)$	26. $(3m-1)(m+4)$	33. $w^8x^8y^4$	40. $\frac{t^5}{6}$
6. $(2x+1)(2x+3)$	13. $(a+5)(a^2-5a+25)$	20. $(r+4)(r-18)$	27. $(c-3)(c^2+3c+9)$	34. $-m^{10}n^5$	41. $\frac{2a^3c}{3b^7}$
7. $(2x-3)(x+6)$	14. $(4a+5b)(16a^2-20ab+25b^2)$	21. $(2x+1)(x+2)$	28. $2(y-2)(y-6)$	35. $\frac{1}{ac^3}$	42. $\frac{64r^6}{t^6}$